Docket No.: BBNT-P01-248
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Tasman et al.

Application No.: 10/649,030 | Confirmation No.: 5116

Filed: August 27, 2003 | Art Unit: 2143

For: SYSTEMS AND METHODS FOR FORWARDING DATA UNITS IN A COMMUNICATIONS NETWORK | Examiner: A. A. Boutah

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is filed within two months of the Notice of Appeal filed September 24, 2008, and is in furtherance of said Notice of Appeal.

In accordance with MPEP § 1207.04, the attached fee transmittal authorizes payment of the difference between the fees paid under § 41.20(b)(2) along with Applicants submission of an Appeal Brief on April 21, 2008, and the current fee for filing an Appeal Brief.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

I.	Real Party In Interest
II	Related Appeals and Interferences
III.	Status of Claims
IV.	Status of Amendments
V.	Summary of Claimed Subject Matter

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

BBN Technologies Corp

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 49 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 13, 35, 39-44
2. Claims withdrawn from consideration but not canceled: None
3. Claims pending: 1-12,14-34,36-38,45-57
4. Claims allowed: None
5. Claims rejected: 1-12,14-34,36-38,45-57

C. Claims On Appeal

The claims on appeal are claims 1-12,14-34,36-38,45-57, which are all the claims pending in this application.

IV. STATUS OF AMENDMENTS

All prior amendments have been entered. No amendments were added after the Final Action in this case, from which Appellants appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' Claim 1 recites a method for transmitting data from a node in a communications network. The node includes a plurality of network interfaces (See FIG. 2, 240-1—240-i; page 7, lines 14-16) that are associated with respective transmission queues (FIG. 2, 232-1—232-j; Figure 3; page 3, lines 1-6, and page 8, lines 6-8). The method identifies a first of the network interfaces from which to transmit the data unit ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18). After identifying the first network interface, the first data unit is stored in a transmission queue associated with that first network interface (FIG. 4, step 445; FIG. 5, step 520; and FIG. 6, step 635; page 14, lines 5-7, page 16, lines 14-15, and page 18, lines 16-19). After storing the first data unit in the associated queue, but before transmission of the data unit, the method identifies a second of the network interfaces to transmit the data unit and determines whether the second interface is different from the first interface (FIG. 10, steps 1005 and 1020; and page 23, lines 3-4 and lines 16-18). That is, the node determines whether the appropriate network interface for transmitting the data unit has changed while the data unit has been in stored in the queue. If the network interfaces are different, the method includes forwarding the data unit to the second network interface for transmission (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Appellants' claim 2 depends from claim 1 and recites that communications network is an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8; and original claim 2).

Appellants' claim 14 recites a network device that includes a plurality of transmission queues for storing data units (FIG. 2, 232-1—232-j; Figure 3; page 3, lines 1-6, and page 8, lines 6-8). The network device also includes a plurality of network interfaces, which are associated with respective transmission queues and are configured to forward one or more data units to other network devices

(See FIG. 2, 240-1—240-i; page 7, lines 14-16). The network device includes a forwarding module, which receives a data unit at the network device (FIG. 2, 230; FIG. 4, 405, FIG. 7, 230; page 12, 11-12) and identifies a first network interface for transmitting the data unit ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18). After identifying the first network interface, the forwarding module stores the first data unit in a transmission queue associated with the first network interface (FIG. 4, step 445; FIG. 5, step 520; and FIG. 6, step 635; page 14, lines 5-7, page 16, lines 14-15, and page 18, lines 16-19). After storing the data unit, the forwarding module identifies a second network interface of the network device for transmitting the data unit and determines if the first network interface is different from the second network interface (FIG. 10, steps 1005 and 1020; and page 23, lines 3-4 and lines 16-18). That is, the forwarding module determines whether the appropriate network interface for transmitting the data unit has changed while the data unit has been in stored in the queue. In response to the forwarding module determining that the identified network interfaces are different, the forwarding module forwards the first data unit to the second network interface (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Claim 51 depends from claim 14 and recites that the second network interface transmits the data over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Appellants' claim 25 recites a system for transmitting data units from a node in a communications network. The node includes a plurality of network interfaces (See FIG. 2, 240-1—240-i; page 7, lines 14-16) and a plurality of transmission queues associated with respective ones of the network interfaces for storing data units (FIG. 2, 232-1—232-j; Figure 3; page 3, lines 1-6, and page 8, lines 6-8). The system includes means for identifying a first network interface of the node for transmitting a data unit ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18); means for, subsequent to identifying the first network interface, storing the data unit in an transmission queue associated with the first network interface (FIG. 4, step 445; FIG. 5, step 520; and FIG. 6, step 635; page 14, lines 5-7, page 16, lines 14-15, and page 18, lines 16-19); means for separately identifying,

subsequent to storing the data unit in the transmission queue, a second network interface of the node from which the data unit is to be transmitted (FIG. 10, step 1005 and page 23, lines 3-4); means for determining if the second network interface is different from the first network interface (FIG. 10, 1020; and page 23, lines 16-18); and means for, in response to determining that the first network interface is different from the second interface, sending the data unit to the second network interface for transmission (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Appellants submit that each of the elements of claim 25 are means-plus-function elements under 35 U.S.C. § 112 paragraph 6. Each of the recited functions is described in the specification as being carried out by JIT (Just In Time) forwarding module 230. Alternative structures for carrying out the storage of data units in transmission queues include a queuing subsystem and a radio driver (page 8, lines 3-11).

Claim 52 depends from claim 25 and recites that the second network interface transmits the data unit over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Claim 26 relates to a computer readable medium containing a plurality of instructions that, when executed by at least one processor of a node, cause the at least one processor to perform a method for transmitting data units in a communications network (original claim 26). The method includes identifying a first network interface of a plurality of network interfaces of the node for transmitting a first data unit ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18). After identifying the first network interface, the first data unit is stored in a first transmission location that corresponds to the first network interface (FIG. 4, step 445; FIG. 5, step 520; and FIG. 6, step 635; page 14, lines 5-7, page 16, lines 14-15, and page 18, lines 16-19). After storing the first data unit in the first transmission location, the method identifies a second network interface of the node to transmit the data unit and determines whether the second interface is different from the first interface (FIG. 10, steps 1005 and 1020; and page 23, lines 3-4 and lines 16-18). That is, the method determines whether the appropriate network interface for transmitting the data unit has

changed while the data unit has been in stored in the transmission location. In response to determining that the first and second interfaces are in fact different, the method includes forwarding the data unit to the second network interface for transmission (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Claim 53 depends from claim 26 and recites that the second network interface transmits the data unit over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Appellants Claim 28 recites a method of transmitting data units from a node that includes a plurality of network interfaces (See FIG. 2, 240-1—240-i; page 7, lines 14-16). The method includes, upon either the node receiving or generating a data unit (FIG. 2, 230; FIG. 4, 405, FIG. 7, 230; page 3, lines 15-16, page 7, lines 14-19, and page 12, lines 11-14), identifying a first of the network interfaces to transmit the data unit to another node ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18). The method further determines that the node is ready to transmit the data unit (FIG. 9, step 905; page 22, lines 7-9). Subsequent to identifying the first network interface, and in response to determining that the node is ready to transmit the data unit, the method identifies a second of the network interfaces to transmit the data unit and determines if the second network interface is different from the first network interface (FIG. 10, steps 1005 and 1020; and page 23, lines 3-4 and lines 16-18). That is, the method determines whether the appropriate network interface for transmitting the data unit has changed during the time period between the identification of the first network interface and the node being ready to transmit the data unit. In response to determining that the first network interface is different from the second network interface, the method transmits the data unit via the second network interface (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Claim 54 depends from claim 28 and recites that the second network interface transmits the data unit over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Appellants claim 32 recites a network device that includes a plurality of network interfaces configured to transmit data units (See FIG. 2, 240-1—240-i; page 7, lines 14-16) and a forwarding module. The forwarding module, upon the network device receiving or generating a data unit (FIG. 2, 230; FIG. 4, 405, FIG. 7, 230; page 3, lines 15-16, page 7, lines 14-19, and page 12, lines 11-14), identifies a first of the network interfaces to transmit the data unit ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13, lines 12-21, page 16, lines 14-15, page 18, lines 16-18). The forwarding module then determines that the network device is ready to transmit the data unit (FIG. 9, step 905; page 22, lines 7-9). Subsequent to identifying the first network interface and in response to determining that the network device is ready to transmit the data unit, the forwarding module identifies a second of the network interfaces to transmit the data unit (FIG. 10, steps 1005 and 1020; and page 23, line 3-4). The forwarding module determines if the second network interface is different from the first network interface (FIG. 10, step 1020, page 23, lines 16-18). That is, the forwarding module determines whether the appropriate network interface for transmitting the data unit has changed during the time period between the identification of the first network interface and the node being ready to transmit the data unit. In response to determining that the first network interface is different from the second network interface, the forwarding module forwards the data unit to the second network interface for transmission (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Claim 55 depends from claim 32 and recites that the second network interface transmits the data unit over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Appellants claim 38 recites a computer -readable medium containing a plurality of instructions that, when executed by at least one processor in a node that includes a plurality of network interfaces, causes the at least one processor to perform a method for transmitting data units in a communications network. The method includes, upon the node receiving or generating a data unit (FIG. 2, 230; FIG. 4, 405, FIG. 7, 230; page 3, lines 15-16, page 7, lines 14-19, and page 12, lines 11-14), identifying a first of the network interfaces to transmit the data unit to another node ((FIG. 4, steps 440 and 445; FIG. 5, steps 515 and 520; and FIG. 6, steps 630 and 635; page 13,

lines 12-21, page 16, lines 14-15, page 18, lines 16-18). The method then determines that the node is ready to transmit the data unit (FIG. 9, step 905; page 22, lines 7-9). Subsequent to identifying the first network interface, and in response to determining that the node is ready to transmit the data unit, the method identifies a second of the network interfaces to transmit the data unit (FIG. 10, steps 1005 and 1020; and page 23, line 3-4). The node then determining if the second network interface is different from the first network interface (FIG. 10, step 1020, page 23, lines 16-18). That is, the node determines whether the appropriate network interface for transmitting the data unit has changed during the time period between the identification of the first network interface and the node being ready to transmit the data unit. In response to determining that the first network interface is different from the second network interface, the method transmits the data unit via the second network interface (FIG. 10, step 1025 followed by subsequent loop through to step 1030; page 23, line 20-page 24, line 2, and page 24, lines 16-19).

Claim 56 depends from claim 38 and recites that the second network interface transmits the data unit over an ad hoc network (FIG. 1, 100; page 6, line 15-page 7, line 8).

Appellants claim 45 recites a method of transmitting data units from a node in a communications network. The node includes a plurality of network interfaces (See FIG. 2, 240-1—240-i; page 7, lines 14-16). The method includes placing a data unit in a transmission queue associated with a first of the plurality of network interfaces of the node (FIG. 4, step 445; FIG. 5, step 520; and FIG. 6, step 635; page 14, lines 5-7, page 16, lines 14-15, and page 18, lines 16-19). The method determines that the data unit has reached a head of the transmission queue (FIG. 9, step 910; page 22, lines 7-12; and page 28, lines 4-5), and, when that occurs, identifies one or more second network interfaces of the node to transmit the data unit (Page 28, lines 4-8). The data unit is then placed at a head of the transmission queue associated with each of the second network interfaces for transmission (Page 28, lines 8-10).

Claim 57 depends from claim 45 and recites that the second network interface transmits the data unit over an ad hoc the node including a plurality of network interfaces network (FIG. 1, 100; page 6, line 15-page 7, line 8).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1, 14, 25, 26, 28, 32, and 38 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement.

B. Claims 1-12, 14-34, 36-38, and 45-57 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,683, 885 to Sugai et al ("Sugai") in view of U.S. Patent No. 6,769,043 to Fedorkow ("Fedorkow") and U.S. Patent Publication No. 2004/0202164 to Hooper ("Hooper").

VII. ARGUMENT

In response to Applicant's Appeal Brief filed on May 6, 2008, the Examiner issued a Restriction Requirement (the "Restriction Requirement") requiring election between two groups of claims. The first group of claims, Group I, includes claims 1-12, 14-34, 36-38, and 51-56. The second group of claims includes claims 45-50 and 57. While Applicants traverse the restriction, Applicants provisionally elect the claims of Group I, i.e., claims 1-12, 14-34, 36-38, and 51-56.

As an initial matter, the issuance of a restriction requirement was improper from a procedural standpoint. According to MPEP 1207.04, an examiner may reopen prosecution to enter a new ground of rejection. A Restriction Requirement is not a rejection. The Examiner's action including the restriction requirement did not include any new grounds for rejection. Thus, the Examiner lacked the authority to reopen prosecution for this matter without including a new grounds for restriction.

Moreover, but without conceding this procedural error, the grounds set forth in the Restriction Requirement for requiring restriction are deficient. The Restriction Requirement asserts that the groups of claims are distinct as that they correspond to subcombinations usable together. To support a restriction on these grounds, an examiner must show that there would "be a serious burden if restriction were required, as *evidenced* by separate classification, status or field of search." MPEP § 806.05(d)(emphasis added). In this instance, the Restriction Requirement failed to provide any evidence to support this showing. Instead, the Restriction Requirement includes a list (Restriction Requirement p. 4) of possible reasons for there being a serious search burden without

any supporting evidence. The Restriction Requirement fails to even indication which of reasons apply. The only evidence supplied by the Examiner, i.e., the fact that the claims of Groups I and II both fall under class 709, subclass 232, would disfavor restriction, instead of supporting it.

For these reasons, Applicants request withdrawal of the requirement for restriction.

With respect to the rejections, the pending claims are fully enabled by the specification and are patentable over the cited references.

A. The Rejections of Claim 1, 14, 25, 26, 28, 32, and 38 under 35 U.S.C. § 112 Should Be Reversed As the Specification Fully Enables the Claims.

The pending Final Action, dated November 16, 2007 rejects claims 1, 14, 25, 26, 32, and 38 under 35 U.S.C. § 112, first paragraph. Specifically, the Final Action asserts that these claims include subject matter that the specification fails to describe in such a way as to enable one skilled in the art to make and/or use the specification. The only grounds for this rejection is an assertion that the specification does not disclose the step of determining if the second network interface is different than the first network interface.

As an initial matter, Appellants submit that the rejection improperly confuses the enablement requirement with the requirement of proper written description. As set forth in MPEP § 2164, "the fact that an additional limitation to a claim may lack descriptive support in the disclosure as originally filed does not necessarily mean that the limitation is also not enabled." Thus, the mere assertion that the referenced step is not disclosed in the application is insufficient to act as the sole basis of a rejection based on the enablement requirement.

Moreover, as set forth in Section V of this brief, the specification discloses and enables determining that a second network interface is different from a first network interface. As recited in claim 1, the first network interface refers to a network interface identified by node in a communication network for use in transmitting a first data unit before the data unit is stored in a transmission queue. The second network interface is a network interface identified by the node for

transmitting the data unit after the data unit has been stored in a queue associated with the first network interface. In claim 1, the determination of whether the first network interface is different from the second network interface is thus a determination whether the network interface identified for transmitting a data unit before the data unit is stored in a queue is the same as or different from the network interface identified after the data unit has been stored in the queue. Claims 14, 25, and 26 use the terms in substantially the same fashion.

Independent claims 28, 32, and 38 use the terms in a slightly different fashion. Independent claims 28, 32, and 38 do not specifically recite the storage of a data unit in a queue. Instead, the first and second network interfaces are distinguished based on their temporal relationship with a determination as to whether a node is ready to transmit a data unit. As explicitly recited in independent claims 28, 32, and 38, the second network interface is a network interface identified after the first network interface is identified in response to the node determining that it is ready to transmit the data unit.

The specification describes a process that includes 1) identifying a first network interface for transmitting a data unit, 2) storing the data unit in an associated queue, 3) determining that the node is ready to transmit the data unit, 4) determining a second network interface for transmitting the data unit, and 5) *comparing the first and second network interfaces*, through Figures 4, 6, 9, and 10. This process proceeds as follows:

1) First, as depicted in Figure 4, a node receives a packet, which is an example of a data unit, at step 405. At step 415, the node determines whether the packet is a unicast packet. If the packet is a unicast packet, the node processes the packet as depicted in Figure 6. In Figure 6, the node performs a next hop lookup at step 610 to identify a next hop and an associated radio profile. As described on page 15, lines 3-6, the radio profile indicates a network interface to be used to transmit the packet. This network interface is an example of a first network interface recited in the claims.

2) At step 635 of Figure 6, the node stores the packet in a queue of the identified interface.

3) At step 905, a node receives a signal from the identified interface that it is ready to receive a next packet for transmission. The node determines that it is ready to transmit the data packet when the data packet is at the head of the sub-queue for the network interface having the highest priority at step 910.

4) Subsequently, as depicted in Figure 9, the unicast packet is dequeued at step 915. As depicted in Figure 10, the node then performs another next hop lookup to obtain a new radio profile at step 1005. This radio profile also includes an identification of a network interface. See Page 23, lines 16-18. This network interface constitutes an example of a second network interface as recited in the claims.

5) At step 1020, the node determines whether the second network interface matches the previously identified (or first) network interface, i.e., the network interface associated with the queue from which the data packet was dequeued at step 915. See Page 23, lines 16-18.

A determination as to whether two items match is a description of a process that determines whether the two items are different. Once two network interfaces are identified, the method merely determines whether they are the same or different. Thus, in describing the above-described process, the specification discloses and gives a flow chart that describes how to determine whether the first interface is different from the second interface.

Thus, the subject matter in question is both fully disclosed and enabled by the specification. Appellants therefore request reversal of the § 112 rejections of independent claims 1, 14, 25, 26, 28, 32, and 38.

B. The § 103 Rejections Should Be Reversed As the Pending Claims Patentably Distinguish Over Sugai, Federkow, and Hooper

In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries

mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 USPQ 459 (1966). The Examiner is also required to explain how and why one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

1. Claims 1-12, 14-34, 36-38, and 51-56

The rejection fails to set forth a *prima facie* case of obviousness with respect to claims 1-12, 14-34, and 36-38. The cited references individually and in combination fail to teach forwarding a data unit to a second identified network interface in response to determining that the second identified network interface is different from a first identified network interface as recited in independent claims 1, 14, 25, 26, 28, 32, and 38.

a. Independent Claim 1, 14, 25, 26, 28, 32, and 38

Independent Claims 1, 14, 25, 26, 28, 32, and 38 each recite the identification of a first network interface of a plurality of network interfaces to transmit a data unit. They each also recite subsequently determining a second network interface to transmit the data unit. Finally, independent claims 1, 14, 25, 26, 28, 32, and 38 all recite determining whether the first network interface is different from the second network interface, and in response to determining that they are different, forwarding the data unit to the second network interface. The cited references, Sugai, Fedorkow, and Hooper fail to describe, teach, or suggest forwarding a data unit to a second network interface in response to determining that a second identified network interface for transmitting a data unit is different from a previously identified network interface for transmitting the data unit.

The Final Action concedes that Sugai and Federkow fail to describe, teach, or suggest this subject matter. The Final Action, however, reiterates an assertion made in a Non-Final Office Action dated May 17, 2007, that Hooper describes this subject matter at paragraph [0029]. Appellants disagree. Appellants discussed this specific assertion with the Examiner during a telephonic interview on August 14, 2007. As indicated in the Examiner's Interview Summary dated

August 23, 2007, the Examiner agreed with Appellants that this paragraph failed to disclose the asserted subject matter.

Hooper, at paragraph [0029] states:

> The scenarios illustrated above assumed that a given set of interfaces could be reserved within a given period of time. However, such scheduling may not always be possible. In such cases, the multicast transmissions to the different interfaces may be enqueued in unicast queues.

This passage discloses that if a network device is unable to schedule multicast transmissions in a suitable time frame solely using multicast queues, it could attempt to utilize one or more unicast queues to schedule the transmission of the packets on the desired interfaces. Thus, Hooper suggests using different queues to obtain access to the same network interface. In stark contrast, independent claims 1, 14, 25, 26, 28, 32, and 38 each recite forwarding a data unit to a different network interface.

Thus Hooper fails to cure the deficiencies of Sugai and Fedorkow with respect to independent claims 1, 14, 25, 26, 28, 32, and 38. Appellants therefore request reversal of the § 103 rejections of the these claims.

Claims 2-12 depend on claim 1 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of these claims at least for the reasons set forth above with respect to independent claim 1.

Claims 15-24 and claim 51 depend on claim 14 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of these claims at least for the reasons set forth above with respect to independent claim 14.

Claim 52 depends on claim 25 and adds further limitations thereto. Appellants therefore request reversal of the § 103 rejections of claim 52 at least for the reasons set forth above with respect to independent claim 25.

Claims 27 and 53 depend on claim 26 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of these claims at least for the reasons set forth above with respect to independent claim 26.

Claims 29-31 and claim 54 depend on claim 28 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of these claims at least for the reasons set forth above with respect to independent claim 28.

Claims 33, 34, 36, 37 and 55 depend on claim 32 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of these claims at least for the reasons set forth above with respect to independent claim 32.

Claim 56 depends on claim 38 and adds further limitations thereto. Appellants therefore request reversal of the § 103 rejections of claim 56 at least for the reasons set forth above with respect to independent claim 38.

b. Claims 2 and 51-56

Claim 2 recites additional subject matter that further distinguishes over the cited references. Specifically, claim 2 recites that the communication network recited in claim 1 is an ad hoc network. The Final Action dated November 16, 2007, reiterates the previous rejection of claim 2, i.e., that while the references fail to teach this subject matter, "one of ordinary skill in the art would have recognized this feature is well known in the art." Appellants disagree. Appellants' Amendment In Response To Non-Final Office Action dated August 17, 2007, describes at length why it would not have been obvious to one of ordinary skill in the art to combine the systems described in the cited references to communicate over an ad hoc network. For example, as pointed out in Appellants' August 17, 2007 Amendment, Fedorkow includes a queuing policy specifically designed for fixed network resources to ensure fair access to upstream trunk bandwidth. As Fedorkow is designed for fixed resource networks, one skilled in the art would not be motivated to use its teachings to address issues of ad hoc networks. The Final Action fails to address Appellants remarks. For these additional reasons, Appellants request reversal of the § 103 rejection of claim 2.

Claim 51 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claim 2, Appellants request reversal of the § 103 rejection of claim 51.

Claim 52 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claims 25 and 2, Appellants request reversal of the § 103 rejection of claim 52.

Claim 53 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claim 2, Appellants request reversal of the § 103 rejection of claim 53.

Claim 54 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claim 2, Appellants request reversal of the § 103 rejection of claim 54.

Claim 55 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claim 2, Appellants request reversal of the § 103 rejection of claim 53.

Claim 56 recites similar, though not identical, subject matter as claim 2, i.e., that the second network interface transmits the data unit over an ad hoc network. Thus, for the reasons provided in relation to claims 38 and 2, Appellants request reversal of the § 103 rejection of claim 56.

2. Claims 45-50 and 57

The references fail to disclose, teach, or suggest the combination of 1) identifying, when a data unit reaches the head of a transmission queue, one or more second network interfaces of the node from which the data unit is to be transmitted and 2) placing the data unit at the heads of transmission queues associated with each of the identified second network interfaces, as recited in independent claim 45.

a. Claims 45-50

Independent claim 45 recites placing a data unit in a transmission queue associated with a first of a plurality of network interfaces of a node. When the data unit reaches the head of the transmission queue, one or more second network interfaces from which the data unit is to be transmitted are identified. The data unit is then placed at the head of the transmission queue associated with each of the second network interfaces for transmission. Neither the Final Action, nor either of the preceding actions issued since the claim was added to the application, even attempts to indicate where the cited references describe, teach, or suggest this subject matter. These Actions have merely asserted that claim 45 is similar to claim 28 and thus should be rejected on the same grounds as claim 28. In fact, the references fail to teach or suggest this subject matter. Appellants have carefully reviewed the cited references and find that none of the references describe, teach, or suggest placing a data unit at the head of transmission queues associated with one or more second network interfaces after the data unit reaches the head of a first transmission queue.

Appellants therefore request reversal of the § 103 rejections of claim 45. Claims 46-50 and claim 57 depend on claim 45 and add further limitations thereto. Appellants therefore request reversal of the § 103 rejections of claims 46-50 and claim 57.

b. Claim 57

Claim 57 further distinguishes over the cited references by reciting subject matter similar to that of claim 2, discussed above. Appellants therefore request reversal of the § 103 rejection of claim 57.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A include the amendments filed by Appellants on August 17, 2007.

Appellants believe no fee is due with this response other than as reflected on the enclosed Transmittal of Appeal Brief. However, if any additional fees are due, please charge our Deposit Account No. 18-1945, under Order No. BBNT-P01-248 from which the undersigned is authorized to draw.

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Respectfully submitted,

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/649,030

1. A method for transmitting data units from a node in a communications network, the node including a plurality of network interfaces, the plurality of network interfaces being associated with respective transmission queues, the method comprising:

identifying a first network interface of the plurality of network interfaces of the node for transmitting a first data unit;

subsequent to identifying the first network interface, storing the first data unit in a transmission queue associated with the first network interface;

subsequent to storing the first data unit in the transmission queue associated with the first network interface, identifying a second network interface of the plurality of network interfaces of the node from which the first data unit is to be transmitted;

determining if the second network interface is different than the first network interface; and

in response to determining that the second network interface is different from the first network interface, forwarding the data unit to the second network interface for transmission.

2. The method of claim 1 wherein the communications network is an ad hoc network.

3. The method of claim 1 further comprising: determining, prior to storing the first data unit, whether the first data unit is a multicast data unit.

4. The method of claim 3 further comprising: determining, when the first data unit is not a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-queue within the transmission queue associated with the first network interface based on the determined priority.

5. The method of claim 3 further comprising: determining, when the first data unit is a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-queue within a transmission queue associated with each of the plurality of network interfaces based on the determined priority.

6. The method of claim 3 further comprising: determining, when the first data unit is a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-queue within a transmission queue associated with at least one of the plurality of network interfaces based on the determined priority.

7. The method of claim 3 wherein, when the first data unit is a multicast data unit, identifying the second network interface includes: identifying a next node to receive the first data unit from a list of next nodes, and identifying the second network interface based on the identified next node.

8. The method of claim 7, wherein in response to determining that the first network interface is the same as the second network interface, storing a copy of the first data unit in the transmission queue associated with the second network interface, and recording a current position in the list of next nodes.

9. The method of claim 7 further comprising: dropping the first data unit when no next node is identified from the list of next nodes.

10. The method of claim 1 further comprising: assigning a sequence number to the first data unit, and wherein the storing the first data unit includes: storing the sequence number with the first data unit in the transmission queue associated with the first network interface.

11. The method of claim 10 further comprising: in response to determining that the first network interface is different than the second network interface, storing the first data unit in a transmission queue associated with the second network interface.

12. The method of claim 11 wherein the storing the first data unit in the transmission queue associated with the second transmission interface includes: storing the first data unit in the transmission queue associated with the second transmission interface based on the sequence number assigned to the first data unit.

14. A network device comprising:

a plurality of transmission queues for storing data units;

a plurality of network interfaces associated with respective transmission queues and being configured to forward the one or more data units to other network devices; and

a forwarding module configured to:

receive a first data unit at the network device,

identify a first network interface of the plurality of network interfaces of the network device for transmitting the first data unit,

subsequent to identifying the first network interface, store the first data unit in a transmission queue associated with the first network interface,

subsequent to storing the first data unit in the transmission queue, identify a second network interface of the plurality of network interfaces of the network device for transmitting the first data unit,

determining if the second network interface is different than the first network interface, and

in response to determining that the first network interface is different from the second network interface, forward the first data unit to the second network interface.

15. The network device of claim 14 wherein the forwarding module is further configured to: determine, prior to storing the first data unit, whether the first data unit is a multicast data unit.

16. The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is not a multicast data unit, a priority for the first data unit, and store the first data unit in a sub-queue within the transmission queue associated with the first network interface based on the determined priority.

17. The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is a multicast data unit, a priority for the first data unit; and store the first data unit in a sub-queue within a transmission queue associated with each of the plurality of network interfaces based on the determined priority.

18. The network device of claim 15 wherein, when identifying the second network interface, the forwarding module is, when the first data unit is a multicast data unit, further configured to: identify a next node to receive the first data unit from a list of next nodes, and identify the second network interface based on the identified next node.

19. The network device of claim 18 wherein the forwarding module is further configured to, in response to determining that the first network interface is the same as the second network interface, store the first data unit in the transmission queue associated with the second network interface, and record a current position in the list of next nodes.

20. The network device of claim 18 wherein the forwarding module is further configured to: discard the first data unit when no next node is identified in the list of next nodes.

21. The network device of claim 14 wherein the forwarding module is further configured to: assign a sequence number to the first data unit, and wherein, when storing the first data unit, the forwarding module is configured to: store the sequence number with the first data unit in the transmission queue associated with the first network interface.

22. The network device of claim 21 wherein the forwarding module is further configured to: in response to determining that the first network interface is different than the second network interface, store the first data unit in a transmission queue associated with the second network interface.

23. The network device of claim 22 wherein, when storing the first data unit in the transmission queue associated with the second network interface, the forwarding module is configured to: store the first data unit in the transmission queue associated with the second network interface based on the sequence number assigned to the first data unit.

24. The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is a multicast data unit, a priority for the first data unit, and store the first data unit in a sub-queue within a transmission queue associated with at least one of the plurality of network interfaces based on the determined priority.

25. A system for transmitting data units from a node in a communications network, the node including a plurality of network interfaces, the plurality network interfaces being associated with respective transmission queues, the system comprising:

means for identifying a first network interface of the node for transmitting a data unit;

means for, subsequent to identifying the first network interface, storing the data unit in an transmission queue associated with the first network interface;

means for separately identifying, subsequent to storing the data unit in the transmission queue, a second network interface of the node from which the data unit is to be transmitted;

means for determining if the second network interface is different than the first network interface; and

means for, in response to determining that the first network interface is different from the second interface, sending the data unit to the second network interface for transmission.

26. A computer-readable medium containing a plurality of instructions that, when executed by at least one processor of a node, causes the at least one processor to perform a method for transmitting data units in a communications network, the method comprising:

identifying a first network interface of a plurality of network interfaces of the node for transmitting a data unit;

subsequent to identifying the first network interface, storing the data unit in a transmission location corresponding to the first network interface;

identifying, after storing the data unit, a second network interface of the plurality of network interfaces of the node from which the data unit is to be transmitted; and

determining if the second network interface is different than the first network interface;

in response to determining that the first network interface is different than the second network interface, forwarding the data unit to the second network interface for transmission.

27. The computer-readable medium of claim 26 further comprising: determining whether the data unit is a multicast data unit, and wherein the method further comprises: determining, when the data unit is a multicast data unit, a priority for the data unit, and store the data unit in an

transmission location associated with at least one of the plurality of network interfaces based on the determined priority.

28. A method for transmitting data units from a node that includes a plurality of network interfaces, comprising:

upon one of receipt of a data unit by the node and generation of a data unit by the node, identifying a first network interface of the plurality of network interfaces of the node from which to transmit the data unit to another node;

determining that the node is ready to transmit the data unit;

subsequent to identifying the first network interface, and in response to determining that the node is ready to transmit the data unit, identifying a second network interface of the plurality of network interfaces of the node to transmit the data unit;

determining if the second network interface is different than the first network interface; and

in response to determining that the first network interface is different than the second network interface, transmitting the data unit via the second network interface.

29. The method of claim 28 further comprising: storing the data unit in an transmission queue associated with the first network interface; and subsequent to identifying the second network interface, storing the data unit in a transmission queue associated with the second network interface.

30. The method of claim 28 further comprising: determining whether the data unit is a multicast data unit; and storing, when the data unit is a multicast data unit, the data unit in a transmission queue associated with each of the plurality of network interfaces.

31. The method of claim 28 wherein the data unit is a multicast data unit, and wherein the method further comprises: storing, for each neighboring node, information indicating whether the multicast data unit has been transmitted to that neighboring node.

32. A network device comprising:

a plurality of network interfaces configured to transmit data units; and

a forwarding module configured to:

upon one of receipt of a data unit by the network device and generation of a data unit by the network device, identify a first network interface of the plurality of network interfaces of the network device to transmit the data unit to another network device,

determine that the network device is ready to transmit the data unit;

determine, subsequent to identifying the first network interface and in response to determining that the network device is ready to transmit the data unit, a second network interface of the plurality of network interfaces of the network device to transmit the data unit, and

determine if the second network interface is different than the first network interface;

in response to determining that the first network interface is different than the second network interface, forward the data unit to the second network interface for transmission.

33. The network device of claim 32 further comprising: a plurality of transmission queues associated with respective network interfaces of the plurality of network interfaces and configured to store data units for the associated respective network interfaces.

34. The network device of claim 33 wherein the forwarding module is further configured to: store the data unit in a transmission queue associated with the first network interface, and subsequent to forwarding the data to the second network interface, store the data unit in a transmission queue associated with the second network interface.

36. The network device of claim 32 wherein the plurality of network interfaces are configured to transmit the data units via a wireless link.

37. The network device of claim 32 wherein the data unit is a multicast data unit, and wherein the forwarding module is further configured to: store, for each neighboring node, information indicating whether the multicast data unit has been transmitted to that neighboring node.

38. A computer-readable medium containing a plurality of instructions that, when executed by at least one processor in a node that includes a plurality of network interfaces, causes the at least one

processor to perform a method for transmitting data units in a communications network, the method comprising:

upon one of receipt of a data unit by the node and generation of a data unit by the node, identifying a first network interface of the plurality of network interfaces of the node to transmit the data unit to another node;

determining that the node is ready to transmit the data unit;

subsequent to identifying the first network interface and in response to determining that the node is ready to transmit the data unit, determining a second network interface of the plurality of network interfaces of the node to transmit the data unit;

determining if the second network interface is different than the first network interface; and

in response to determining that the first network interface is different from the second network interface, transmitting the data unit via the second network interface.

45. A method for transmitting data units from a node in a communications network, the node including a plurality of network interfaces, the method comprising:

placing a data unit in a transmission queue associated with a first of the plurality of network interfaces of the node;

determining that the data unit has reached a head of the transmission queue;

identifying, when the data unit reaches the head of the transmission queue, one or more second network interfaces of the node from which the data unit is to be transmitted; and

placing the data unit at a head of the transmission queue associated with each of the second network interfaces for transmission.

46. The method of claim of claim 45, wherein placing a data unit in a transmission queue comprises storing a copy of the data unit in the transmission queue.

47. The method of claim 45, wherein placing a data unit in a transmission queue comprises storing the data unit in a memory and storing a placeholder in the transmission queue.

48. The method of claim 45, wherein identifying one or more second network interfaces from which the data unit is to be transmitted comprises identifying neighboring nodes to receive the data unit.

49. The method of claim 48, wherein identifying one or more second network interfaces from which the data unit is to be transmitted comprises identifying one or more network interfaces by which the identified neighboring nodes can be reached.

50. The method of claim 48, comprising transmitting the data unit to the identified neighboring nodes.

51. The network device of claim 14, wherein the second network interface transmits the data unit over an ad hoc network.

52. The system of claim 25, wherein the second network interface transmits the data unit over an ad hoc network.

53. The computer readable medium of claim 26, wherein the second network interface transmits the data unit over an ad hoc network.

54. The method of claim 28, wherein the second network interface transmits the data unit over an ad hoc network.

55. The network device of claim 32, wherein the second network interface transmits the data unit over an ad hoc network.

56. The computer readable medium of claim 38, wherein the second network interface transmits the data unit over an ad hoc network.

57. The method of claim 45, wherein at least one of the second network interfaces transmits the data unit over an ad hoc network.

APPENDIX B

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.